

Docket No. F-9180

Ser. No. 10/589,415

APPENDIX I

ALL PENDING CLAIMS WITH AMENDMENTS EFFECTED THEREIN

1. (Cancelled)

2. (Currently Amended) An electric pump unit, comprising:

a housing having a first housing end, a second housing end, and an inner dividing wall dividing said housing into a pump section and a motor section and defining a shaft hole;

said pump section being configured for drawing and discharging a fluid and disposed at said first housing end, said pump section housing a pump device;

a rotating shaft rotatably disposed in said shaft hole and having a first end engage with said pump device and a second end extended into said motor section;

said motor section comprising:

a rotor fixed to said second end of said rotating shaft;

said rotor including a rotor core material forming a rotor core outer-diameter surface extending in an axial direction, forming a first bearing surface, and forming first and second rotor ends extending substantially in a radial direction;

said rotor core material housing a permanent magnet such that said permanent magnet is not exposed at said first bearing surface; and

a stator including a stator core material configured to have pole teeth, and coils are disposed on said pole teeth at a periphery of said rotor, said pole teeth having said coils on radially extending stem portions and having inner ends each respectively branching

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contiguously to form at least portions of a stator core inner - diameter surface of said stator; and

said rotor core outer-diameter surface opposing said stator core inner - diameter surface without intervening solid bearing parts to define a bearing gap between said rotor core outer-diameter surface and said stator core inner-diameter surface such that rotation of said rotation shaft is supported by said stator core inner -diameter surface being in sliding contact with said rotor core outer-diameter surface.

3. (Original) An electric pump unit according to claim 2, wherein:

said stator core has said stator core inner-diameter surface formed contiguously about an entire circumference thereof so as to form an annular stator inner core having a cylindrical inner circumferential face forming said stator core inner-diameter surface; and

said pole teeth protrude radially outward from an outer circumferential face of said annular stator inner core and are separated by gaps at an outer periphery of said stator.

4. (Cancelled)

5. (Currently Amended) The electric pump unit according to claim 3, wherein said permanent magnet is a rare-earth magnet, and said rotor core is formed by using laminated electromagnetic steel plates as said rotor core material.

6. (New) The electric pump unit according to claim 2, wherein:

said stator core has a stator core outer-diameter surface formed contiguously about an entire circumference thereof so as to form an annular stator outer core; and

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said pole teeth protrude radially inward from said annular stator outer core and have circumferentially extending branches that are separated by gaps and together form said stator core inner -diameter surface as a discontinuous surface.

7. (New) The electric pump unit according to claim 6, wherein said permanent magnet is a rare-earth magnet, and said rotor core is formed by using laminated electromagnetic steel plates as said rotor core material.

8. (New) An electric pump unit, comprising:

a housing having a first housing end, a second housing end, and an inner dividing wall dividing said housing into a pump section and a motor section and defining a shaft hole;

said pump section being configured for drawing and discharging a fluid and disposed at said first housing end, said pump section housing a pump device;

a rotating shaft rotatably disposed in said shaft hole and having a first end engage with said pump device and a second end extended into said motor section;

said motor section comprising:

a rotor fixed to said second end of said rotating shaft;

said rotor including a rotor core material forming a rotor core outer-diameter surface extending in an axial direction, and forming first and second rotor ends extending substantially in a radial direction;

said rotor core material housing a permanent magnet such that said permanent magnet is not exposed at said first bearing surface; and

a stator including a stator core material configured to have pole teeth, and coils are disposed on said pole teeth at a periphery of said rotor, said pole teeth having said coils on radially extending stem portions and having inner ends each respectively branching

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contiguously to form at least portions of a stator core inner - diameter surface of said stator;;

a solid lubricant coating film made of a non-magnetic material formed adhered on one of said rotor core outer-diameter surface or said stator core inner -diameter surface; and

said rotor core outer-diameter surface opposing said stator core inner - diameter surface with only said solid lubricant coating film intervening therebetween to define a bearing gap between another one of said rotor core outer-diameter surface and said stator core inner-diameter surface and said solid lubricant coating film such that rotation of said rotation shaft is supported by said solid lubricant coating film being in sliding contact with said another one of said stator core inner -diameter surface or said rotor core outer-diameter surface.

9. (New) An electric pump unit according to claim 8, wherein:

said stator core has said stator core inner-diameter surface formed contiguously about an entire circumference thereof so as to form an annular stator inner core having a cylindrical inner circumferential face forming said stator core inner-diameter surface; and

said pole teeth protrude radially outward from an outer circumferential face of said annular stator inner core and are separated by gaps at an outer periphery of said stator.

10. (New) The electric pump unit according to claim 9, wherein said permanent magnet is a rare-earth magnet, and said rotor core is formed by using laminated electromagnetic steel plates as said rotor core material.

11. (New) The electric pump unit according to claim 8, wherein:

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said stator core has a stator core outer-diameter surface formed contiguously about an entire circumference thereof so as to form an annular stator outer core; and

said pole teeth protrude radially inward from said annular stator outer core and have circumferentially extending branches that are separated by gaps and together form said stator core inner -diameter surface as a discontinuous surface.

12. (New) The electric pump unit according to claim 11, wherein said permanent magnet is a rare-earth magnet, and said rotor core is formed by using laminated electromagnetic steel plates as said rotor core material.

13. (New) An electric pump unit, comprising:

a housing having a first housing end, a second housing end, and an inner dividing wall dividing said housing into a pump section and a motor section and defining a shaft hole;

said pump section being configured for drawing and discharging a fluid and disposed at said first housing end, said pump section housing a pump device;

a rotating shaft rotatably disposed in said shaft hole and having a first end engage with said pump device and a second end extended into said motor section;

said motor section comprising:

a rotor fixed to said second end of said rotating shaft;

said rotor including a rotor core material forming a rotor core outer-diameter surface extending in an axial direction, and forming first and second rotor ends extending substantially in a radial direction;

said rotor core material housing a permanent magnet such that said permanent magnet is not exposed at said first bearing surface; and

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a stator including a stator core material configured to have pole teeth, and coils are disposed on said pole teeth at a periphery of said rotor, said pole teeth having said coils on radially extending stem portions and having inner ends each respectively branching contiguously to form at least portions of a stator core inner - diameter surface of said stator;

first and second solid lubricant coating films made of a non-magnetic material formed adhered respectively on said rotor core outer-diameter surface and said stator core inner -diameter surface; and

said rotor core outer-diameter surface opposing said stator core inner - diameter surface with only said first and second solid lubricant coating films intervening therebetween to define a bearing gap between said first and second solid lubricant coating films of said rotor core outer-diameter surface and said stator core inner-diameter surface such that rotation of said rotation shaft is supported by said first solid lubricant coating film being in sliding contact with said second solid lubricant coating film.

14. (New) An electric pump unit according to claim 13, wherein:

said stator core has said stator core inner-diameter surface formed contiguously about an entire circumference thereof so as to form an annular stator inner core having a cylindrical inner circumferential face forming said stator core inner-diameter surface; and

said pole teeth protrude radially outward from an outer circumferential face of said annular stator inner core and are separated by gaps at an outer periphery of said stator.

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15. (New) The electric pump unit according to claim 14, wherein said permanent magnet is a rare-earth magnet, and said rotor core is formed by using laminated electromagnetic steel plates as said rotor core material.

16. (New) The electric pump unit according to claim 13, wherein:
said stator core has a stator core outer-diameter surface formed contiguously about an entire circumference thereof so as to form an annular stator outer core; and

said pole teeth protrude radially inward from said annular stator outer core and have circumferentially extending branches that are separated by gaps and together form said stator core inner -diameter surface as a discontinuous surface.

17. (New) The electric pump unit according to claim 16, wherein said permanent magnet is a rare-earth magnet, and said rotor core is formed by using laminated electromagnetic steel plates as said rotor core material.

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